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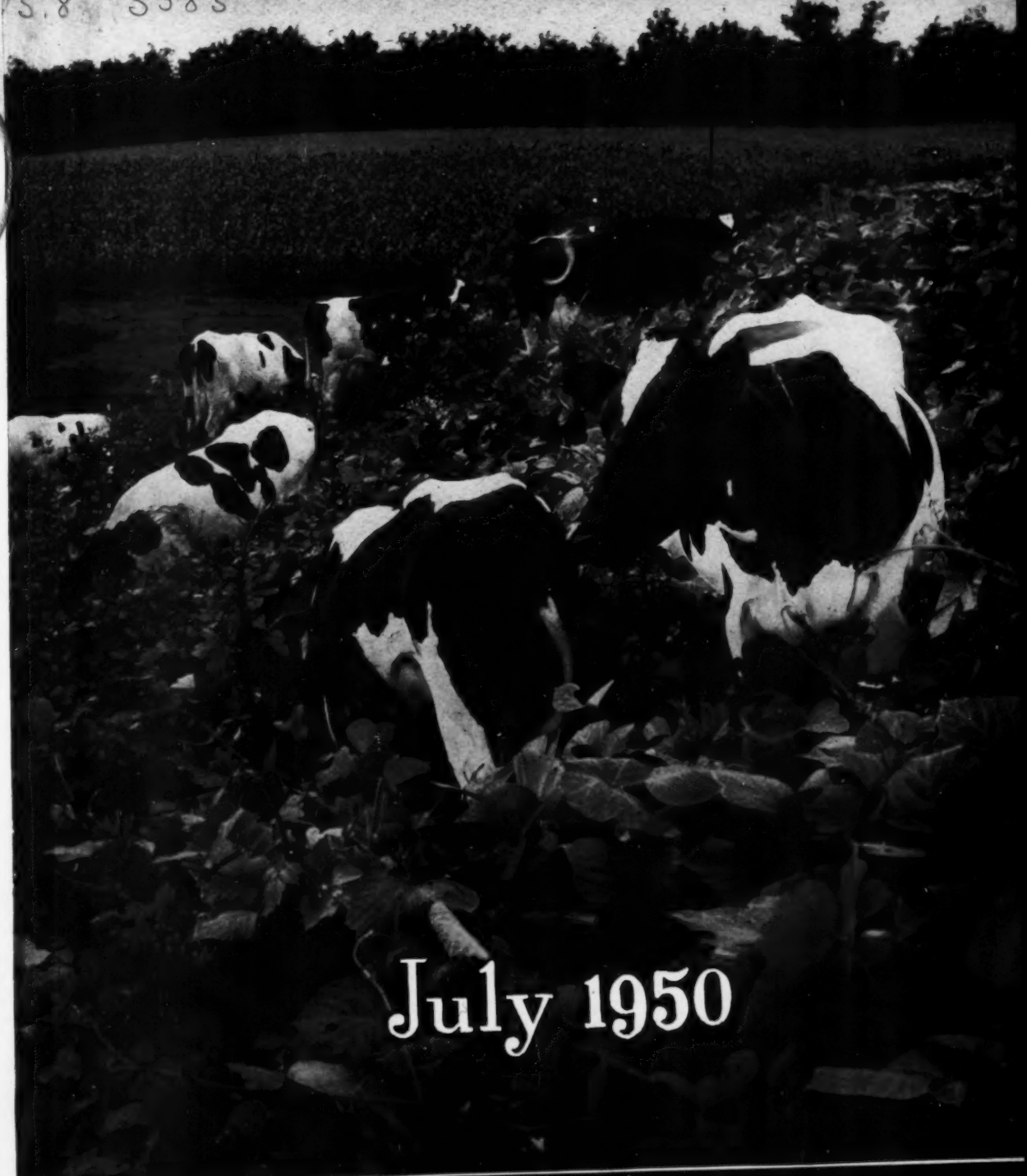

July 1950

# SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

# SOIL CONSERVATION •

JULY — 1950
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**WELLINGTON BRINK**
**Editor**
**Art Work by**
**W. HOWARD MARTIN**

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**IDEA: SNOW-MELT STAGGERED.**—The principal cause of runoff in the Douglas (Wash.) Soil Conservation District is snow-melt on frozen ground. Observations made in January showed 12 inches of frost under from 12 to 18 inches of snow, indicating that there would be a severe runoff.

Two men who have snow plows on their tractors decided to see if they could induce uneven thawing by plowing strips across their fields. T. R. Hedges covered 90 acres of stubble with strips about 25 feet apart early in February. This work required 3 hours' time. Five days later a strong wind closed all roads in the county except for the one along this field, where no snow moved because of the strips. After 2 weeks of moderate weather, the soil in the plowed strips was frost-free and the ridges of snow started to melt and was taken up by the frost-free soil. The frost-free bands widened daily and this field was one of the very few where no water was lost.

As in the past, special tillage—chisel, duckfoot, and subsoiler—held most of the water, but this field which had the additional protection was the best observed.

John O'Brien used the same idea on some fallow ground but waited until the snow was settling, and this did not remove the frost in time to prevent some runoff, although he feels he had less loss on this piece than on the unplowed fields.

**FRONT COVER.**—Kudzu is a marvelous plant for steep, rough land such as this tract on the farm of John E. Flora, in Franklin County, Va. Flora has some of the best Holstein cattle in his State Orin S. Welch took the photograph.

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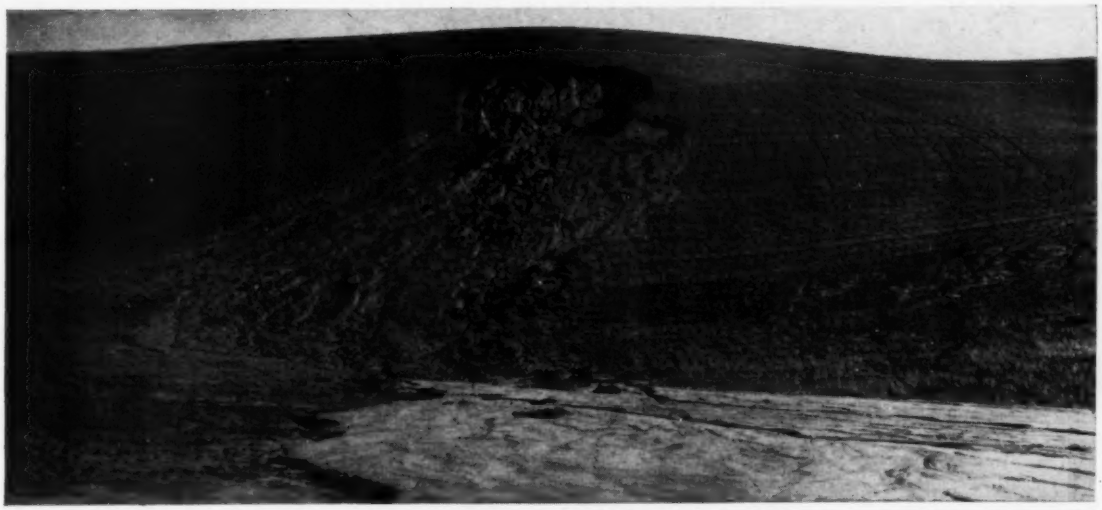


**Soil slip 4 feet deep on Class IV land, hilly topography, south of Colfax, Wash. Wheat is covered by eroded material at foot of slope.**

# THE HILLS ARE FALLING DOWN

**By HUGH HAMMOND BENNETT**

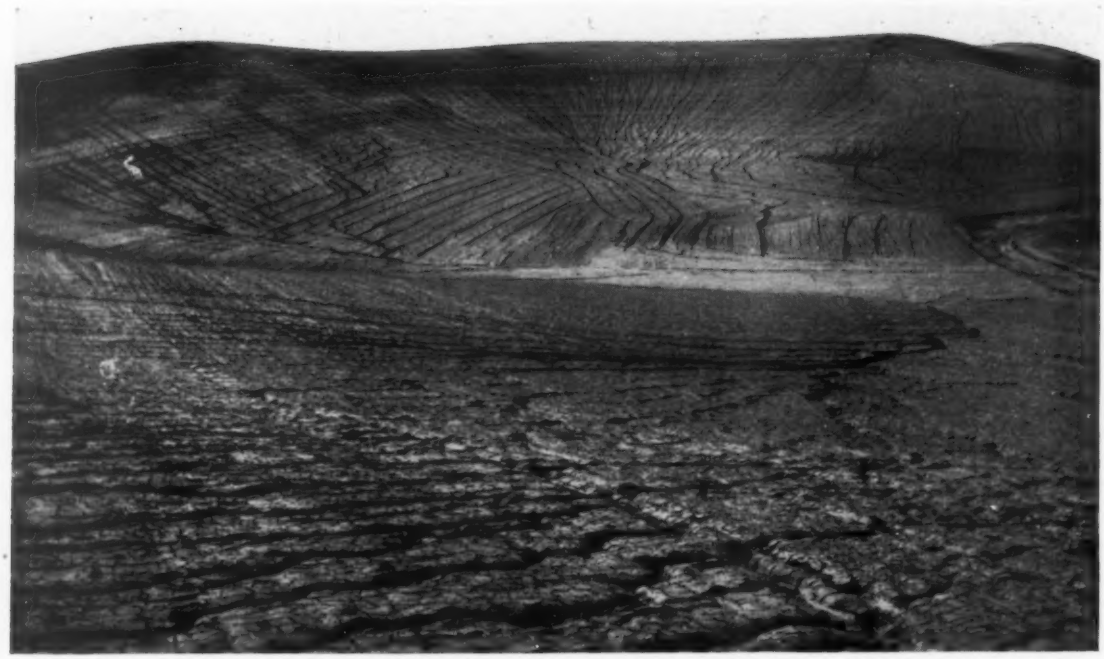
THIS year of 1950 I got to see for the first time what I have been wanting to see for more than two decades; that is, erosion in the raw, close up to the violent event—out in the rich Palouse wheat country of Washington, Idaho, and Oregon. Of course, I didn't want to see what I did see, except in the sense of getting closer acquainted with it. I knew about its existence, its effects, and, photographically, about its general pattern. Many times I had seen the effects of erosion in the region but only weeks after the cataclysmic event. I was anxious to see the process in action or right close up to the stage of action.

It was the latter that I saw, along with other things, on my trip to attend the annual meeting of the Pacific States Section of the American Bankers Association at Pullman, Wash. In addition to addressing the bankers convention, I had two good days in the field studying the effects of erosion and examining the progress that is being made in erosion control and prevention; that is, soil and water conservation.

Erosion in the Palouse this year was—farmers and soil conservation district supervisors and soil conservation technicians told me—not so bad as usual. But still there was much too much of it. It was produced by melting of accumulated snow and by spring rains, mostly in February and March.

The erosion on the steeper lands of the Palouse is generally violent and destructive at this time of the year, especially when the superlative richness of the soil is taken into consideration. The usual expression "severe erosion" does not seem adequately descriptive of the Palouse type. Soil eruption seems more meaningful, or, perhaps, the hills are falling down. Erosion on the rich, silty lands strips the hilltops and ridge crests of the highly productive topsoil and covers up and smothers the wheat on lower slopes with deposits of erosion debris. Really the Palouse type of erosion can better be explained by pictures than by words. So, I am including a few photographic illustrations by way of pictures taken while I was there. (If you look at these photographs, don't forget that nearly everybody out there says: "The erosion this year is not up to par; it's only moderately bad.")

While it is important to know some of the details of the regional types and the extent of erosion, it is the soil conservation program that is most important. Progress with soil conservation in the Palouse is good in some sections and not so en-



**Wholesale erosion on "good" wheat lands. Stark tragedy induced by shortsightedness and the desire for quick cash.**

couraging in other places. It's spotted that way in some other parts of the country, too.

I drove through several soil conservation districts in company with local farmers, soil conservation district supervisors, soil conservation technicians, and business people. During the morning of the first day out, we stopped 30 minutes "for coffee" at an important town in the Pine Creek Soil Conservation District. Here we were joined by more businessmen and local farmers. The 30-minute "coffee stop" panned out as follows: 5 minutes for coffee and 25 minutes for discussion of soil conservation progress. The coffee was good, and after the talks we drove on to and through the North Palouse Soil Conservation District, joining up with additional conservation supervisors, farmers, businessmen, and bankers.

We made a number of stops along the road to see and discuss what was being done and what was not being done about soil conservation. For example, at the Hoffman brothers' farm, near Rosalia, we saw some really excellent effects of sound soil conservation. There was no erosion of any consequence that we could find on the farm, and the wheat yield for 1949 was over 45 bushels per acre—and it was not considered an extra good year for wheat. On some farms where there was no evidence of any soil conservation of any kind, we not only found much severe erosion but the 1949 wheat yield in one instance was reported as averaging less than 20 bushels per acre.

In the North Palouse district we saw much good soil conservation work and, along the way, conspicuous road signs bearing novel suggestions for getting ahead with the soil conservation job. These roadside signs, I was told, represent the efforts of Banker Charles Funkhouser of Palouse, an ardent conservationist.

In too many places, however, we saw steep slopes streaked with this year's erosion rills. These were, for the most part, 6 to 8 inches deep and 8 to 10 inches wide; some, unfortunately, were 2 feet deep. All of them were ghastly reminders of what goes on each succeeding year, especially in fields of winter wheat planted on summer fallow with part of stubble plowed under and in fields where all the stubble had been plowed under so that it could have no possible protective effect on the surface of the land.

But what looked worse were the accumulated results of the annual erosion—waste of soil reflected in the expanding spots of erosion-exposed

yellow silty-clay subsoil. In some of the more hilly sections at least half of the land consists of such exposed subsoil. These areas, we were told, often produce no more than 10 or 12 bushels of wheat when neighboring lands still retaining the dark-colored topsoil, or part of it, produce 30 to 45 bushels or more per acre. We were told, also, that originally many of these eroded lands under uneroded virgin conditions turned out 50 or 60 bushels of wheat per acre, sometimes 70 bushels, without fertilization or crop rotation.

In the Palouse, representing some of the world's most productive wheat land and powerfully good pea, grass, and legume land, erosion is a double-edged tool of soil impoverishment. It not only strips off the rich topsoil, exposing relatively poor subsoil, but, as already noted, the eroded soil when deposited on lower slopes smothers out considerable wheat. The erosion first washes off the rich topsoil and then proceeds to cut into exposed clay subsoil, thus continuing to deposit smothering material over the lower slopes. At this stage the deposited material is more clayey and does a better job of smothering out wheat—if the word "better" can be used in connection with such a process of land damage.

**White spots are where the subsoil is showing through as result of erosion. This is 8 miles south of Pullman.**

**This is an example of the result of burning stubble and summer fallowing in an area where rainfall is sufficient for annual cropping. This field was seeded to winter wheat in the fall of 1947. It did not make sufficient growth to provide any appreciable amount of protection. The Chief's dour expression shows what he thinks of this kind of farming.**

Next day we drove through a very hilly section northwest of Pullman, comprising something over a hundred thousand acres of land of capability Class IV, according to the reconnaissance soil conservation survey of the State. Because of steepness, most of this land is highly susceptible to erosion and the north slopes are subject to severe damage by soil sliding. Generally speaking, Class IV land in such country should be used most of the time for grass, legumes, or grass-legume mixtures. Probably a more detailed survey would show that some of the land is even steeper and less amenable to cultivation than Class IV. If it is, it should be kept in grass or grass-legume mixtures. Such a survey would probably show, also, some Class III land and perhaps even Class II, both of which can be cultivated safely under good soil conservation practices.

What was so distressing in this locality was that nearly all the land was being used for wheat, most of it without any semblance of soil conservation except that there had been very little burning of the wheat stubble and in an occasional field part of the stubble had been left on the surface of the ground and part plowed under.

Some of the soil conservation technicians accompanying us complained of the difficulties they had encountered in trying to get these lands protected. They said that just about everything that was done along the line of land use in the area had combined against the establishment of protective soil conservation measures. It seemed the truth of what they said was visibly demonstrated in every field except the few where not all of the crop stubble had been turned under. My rough

estimate was that at least 80 percent of the land had been affected by erosion or north-slope slides this year, and part of the remainder had been damaged by deposition of material washed down from above. Something like half of the land had been eroded down to or nearly to subsoil and now this is being cut into by continuing erosion, with damaging deposits of silt-clay products at the foot of slopes.

I was told that some agriculturalists are advocating that erosion in such areas be allowed to continue, without attempt to stop it until the land is literally forced out of cultivation. At this stage, these advocates say, soil conservation work should begin.

My only comment to this is that such practice, if generally followed, would lead to rapid national decline.

About all I was able to suggest, offhand, about the use of these very hilly lands was not to give up—certainly not before every possible method of approach for improving the situation is exhausted. I pointed out that what seemed most promising now is to make the best possible use of the educational process, especially through the employment of the neighbor-group approach for soil conservation. Our technicians in the Soil Conservation Service have recently learned much about ways and means of making use of this new and promising method of inducing more landowners and operators to adopt at once effective soil conservation practices, to be applied according to land capability and need.

In these more difficult situations—and in all situations—I have great hope that the group approach will prove helpful right here in this locality. I think arrangements can be speedily worked out to go ahead with this method, which may be the only possible way for saving such land. In the meantime, the area should be surveyed in detail to determine precisely what lands can be cultivated, what should be used most of the time for grass and legumes, and what should be used all the time for grass and legumes.

There has been a combination of causes leading to the loss of soil and water in the Palouse, but to a considerable degree I think too many who have advised as to how the land should be used see the

**This is the type of fall plowing recommended for the Palouse where peas or any other spring crop follows wheat. The furrow slice is set up on edge, the stubble being partially covered. Rough plowing and stubble have proved effective in controlling erosion.**

**Fall-disked winter wheat stubble on surface—3,500 pounds to the acre—solves erosion problem on this slope near Steptoe, Wash., in spring of 1950.**

situation from the wrong point of view. They seem to base their conclusions—and advice—on what is called *the cost of controlling erosion.* This, of course, is highly important; but it seems to me that in situations of this kind *the cost of not controlling erosion* may be even more important. When just the cost of controlling erosion is considered, I am afraid something very important is overlooked. By considering the problem from the angles of both the cost of controlling erosion and the cost of not controlling erosion, I am convinced that results will be better. I am not at all sure, however, it is going to be easy to get very far with this because of the difficulty of getting the idea understood by those who have worked so long from the point of view of controlling erosion after it has started rather than preventing it before it has started. In practice we have to do both, of course; but for various reasons the problem is not quite that simple.

Perhaps what happened in the Palouse in the heavy erosion year of 1948 would help to clear up what I mean. That year, according to 1,200 measurements of the effects of erosion made by Soil Conservation Service technicians cooperating with the technicians of Washington State College, it cost on many farms 20 bushels of rich Palouse soil to produce 1 bushel of wheat. That much soil was washed out of wheat fields of many farms for every bushel of wheat that was grown, according to the study. If the price at which topsoil is commonly sold by those who sell topsoil—that is, $1 a bushel—is accepted as the value of a bushel of topsoil, then the cost of wheat produced on these farms in 1948 was $20 worth of topsoil to produce $1.50 worth of wheat. I am not saying that $1 a bushel is a proper value for topsoil; I don't think it is. I can't suggest how any true money valuation of a resource that stands between life and death or between national welfare and national decline can be arrived at. But for the purpose of illustrating the point of cost of not controlling or preventing erosion, or doing both, this method of appraisal may have some place in developing our thinking about proper land use and protection in the Palouse country.

And there is still another way of illustrating this point of the cost of not controlling and preventing erosion: According to measurements and observations in 1948, the soil equivalent of sixty-six 80-acre farms went down the Columbia River every day for a month during the high tide of heavy rains, destructive floods, and disastrous erosion.

The erosion of the lands that produced most of the flood water of the region in 1948, and

brought death to many, did not make the headlines in the news. It was the damage caused by the floods, and the loss of life, that was emphasized in the news reports. My own estimate is that, not considering the cost of life, the erosion damage was much greater than the flood damage. Soil erosion is not nearly so spectacular as floods, even if it is more destructive; but the full effects of erosion do not stop with the damage to the land. After the mellow topsoil is washed off down to relatively impervious clay, most of the rain water flows rapidly off the land to add volume to floods; and, in addition, great quantities of soil are carried into the channels of streams to fill up reservoirs and do other damage.

There is not space here to tell all of what I saw on this recent trip to the Palouse. Perhaps I can complete the story later on—we took samples of deposited topsoil material and of erosion-exposed subsoil to determine in the laboratory how much organic matter washed off the lands of the Palouse and how much more clay is now going down the slopes to cover the rich colluvial and alluvial lands of the lower slopes and stream bottoms. And, furthermore, the yields of wheat on both subsoil and deposited topsoil by the coming harvest will be needed to complete the story I have started to tell.

And there is still another matter: The same types of good forward thinking, along with, probably, some fallacious thinking, which I have set down here, is going on pretty much throughout the United States. I set them down on the train returning from Washington State to Washington, D. C., from my field notes and observations and from reports that were made to me in the field. There is no thought of casting any stones in the direction of the Palouse country; rather, the intention is to get the minds of men more accurately focused on the soil conservation problem. More people can help with the job, not only in the Palouse but over the Nation and around the world.

Soil conservation is the most important job facing the United States—and the world. We have a great nation. We are going to keep it great through adequate defense from both armed attack and unarmed attack. I mean that we are going to defend ourselves from military invasion and from soil erosion, disease, and any other influences that would undermine our American way of life.

## DISTRICT PROFILE

### WEBB of WASHINGTON

At the ripe old age of 43, R. B. "Bob" Webb, of Skamokawa, Wash., has earned distinction as one of the Pacific Northwest's "elder statesmen" of soil conservation.

The role is well justified. Youthful Bob Webb has held most of his State's positions of conservation leadership. His advice and counsel are sought throughout the Northwest and elsewhere by men many years his senior.

Since 1948, Webb has been president of Washington's dynamic State association of soil conservation districts and chairmen of his own local board of district supervisors. This year he stepped down from the presidency of the State association to accept membership on the State Soil Conservation Committee. Webb announced, in accepting the job, that his principal aim would be to help bring every acre of farm land in Washington within the boundaries of a soil conservation district.

Bob Webb believes sincerely in the democratic concepts of the districts. Throughout his term as president of the State association, he kept urging local supervisors to assume greater initiative and responsibility in getting conservation measures on the land. His powers of persuasion were strong. Few States can boast of more active or independent-thinking supervisors than Washington, nor of finer working relationships between districts and State government.

For many years, Washington, like many other States, paid little attention to the work of soil conservation districts. Webb believed that responsible State officials should know what was going on in the districts and that they should offer more than words of encouragement to local supervisors. He carried his case directly to the Governor who promptly agreed with every point he made and took immediate steps to place the resources of the State government behind districts.

As a result, Washington is today one of the few States with a full-time soil conservation liaison officer whose job is to find out what kind of help

R. B. Webb.

districts need from their State government and to see to it that they get the help from the right department at the right time. At the Governor's urging, the legislature also acted to grant soil conservation districts, on a matching basis, up to $10,000 of State funds for flood control and related conservation work.

Bob Webb's mild, almost retiring, manner is somewhat deceiving. His natural reserve disguises a mastery of all the intricate, technical details of soil and water conservation, a knack for diplomacy, and an unusual capacity for getting people to work together.

Webb's grounding in the fundamentals came as a working technician of the Soil Conservation Service in southern California. For nearly 5 years, he served both as an agronomist in designing and installing conservation measures and as an administrative officer charged with encouraging farmers to join together for group action. Regional Director J. H. Christ recalls that Bob Webb had a special facility for understanding the problems of farmers and an engaging way of leading them to appreciate the benefits of conservation. Webb's services as a conservationist was preceded by 5 years of study at Oregon State College which earned him B. S. and M. S. degrees in farm crops, a year of teaching at his alma mater, and several years of applied research on agronomic problems at the Moro Branch Experiment Station in eastern Oregon.

In 1942 Webb resigned from SCS and engaged in dairy farming in Wahkiakum County, Wash., on the banks of the lower Columbia River. He keeps a herd of 25 to 30 milk cows, predominantly Guernseys, and supplies all their pasture and hay on the farm. The Webb farm is, of course, completely under conservation. Bob speaks from personal experience when he says, "Good conservation farming pays, as I have found from pasture rotation, the seeding of conservation grasses and legumes, weed control, and the use of barnyard manure and commercial fertilizers."

Shortly after his arrival in the valley, Webb joined the local grange, the community church, and various civic organizations. But "soil conservation is my first love and most of my extra efforts are in that direction."

During our conversation, Webb mentioned that he did all of his own work with the exception of help he received "from a high-school freshman and his two younger brothers." Mrs. Webb later called me aside to explain that, "Old Professor Webb is getting forgetful. The high-school freshman he speaks of is his eldest son. He also has a daughter and two small sons. He was married in June of 1931 and naturally I was the gal he married." Mrs. Webb's gracious charm belies her ability with a typewriter. During his two terms as president of the State association, Webb received and acknowledged scores of letters monthly. Mrs. Webb served as his secretary. She too is an authority on soil conservation in Washington.

—William L. Southworth

**READER FAMILY GROWING.**—The West Virginia State Soil Conservation Committee has subscribed to Soil Conservation Magazine for each soil conservation district supervisor in the State.

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# THESE ARE SOME OF THE MARKS OF PROGRESS

By J. W. SARGENT

THE march of progress in Southeastern agriculture is almost fantastic. Advances in production of food and fiber—due in no small way to improvement in land use and treatment—border the unbelievable. The particular reason? That covers a broad front including research, marketing, processing, transportation, machinery and equipment, land use and treatment, seed, and fertilizer.

Whatever the advances along the whole front, they are due largely to the development and use of scientific knowledge to meet the problems of our day. We might do a little bragging about progress, but there is danger in complacency. There is no reason for leaning on our oars. The job of adequately clothing and feeding all of our people and helping clothe and feed the people of the world is a tremendous task. We now know it is unwise to exploit and abuse our resources to meet current needs.

Let's narrow our field of thinking and review progress made during recent years in a few phases of agriculture in which most of us are vitally interested. I believe they are good indications of what is happening all along the line.

The upward trend in the production of seed of grasses and legumes needed for land improvement and forage is noteworthy. In the early forties only a few thousand pounds of Suiter's grass (Kentucky 31) seed were available. In 1949, more than 10 million pounds of this valuable grass seed were harvested in soil conservation district activity. That meant that 100,000 acres of land where this grass was needed for soil conservation and pasture could be seeded in 1950. This 10 million pounds of available seed, plus much more of which we have no record, was exhausted by early March 1950. Think of it! An increase from a few pounds to 10 million or more in less than 10 years.

Take another example. In 1935, there was one 2-pound packet of blue lupine in the United States. Although lupine has been grown in the Orient for 2,000 years, no progress had been made in the use of this crop in our country. Largely through soil conservation district activity, more than 50 million pounds of blue lupine seed were harvested in the spring of 1949. This may mean an end to the ever-increasing dust storms in the peanut belt of the Southeast.

Increase in the use of Caley-peas, sometimes called wild winter peas or Singletary peas, is impressive. Alabama and Mississippi alone now produce several million pounds of this seed annually. In at least two of the soil conservation districts of Alabama, farmers harvested about a million pounds of this seed in 1949. It is a valuable grazing and soil-improving plant which, with proper management, is self-perpetuating.

Sericea, sometimes referred to as poor-land alfalfa, was scarcely known 15 years ago. Last year farmers in soil conservation districts in Georgia, Alabama, and the Carolinas harvested nearly 15 million pounds of sericea seed. Not only does it provide good grazing but, with good management, is a valuable hay crop well suited to rough land conditions.

Crimson clover is not a new crop, but it has recently increased and spread into new territory. Alabama soil conservation farmers harvested in

NOTE.—The author is assistant regional director, Soil Conservation Service, Spartanburg, S. C.

excess of 10 million pounds of this seed last year. Georgia farmers produced even more. One county in Alabama—Autauga—produced almost 1 million pounds of this seed last year, mostly the reseeding strain.

Annual lespedeza, for all practical purposes, was introduced in the Piedmont section of the Carolinas by the Soil Conservation Service. A surplus of seed was harvested last year in the Carolinas, Virginia, and Tennessee.

There has been a substantial increase in the amount of all the white clovers, particularly Ladino, and in buttonclover. Other soil-conserving crops which fit into a better land-use program have spread rapidly during recent years.

The districts and the Service have had a lot to do with a more extended use of some 20 previously unused crops in this region. They include bicolor lespedeza, hairy indigo, Pensacola Bahia, Pangola, kudzu, crotalaria, Coastal Bermuda, ryegrass, and we have been instrumental in a far more extensive use of Dallisgrass, orchardgrass, alfalfa, and pine trees.

Let's take a look at the soil-amendment materials—fertilizer and lime. During 1948 the soil-amendment industry produced some 40 million tons of fertilizer material for use on the land. Forty million tons will load a string of freight cars—30 tons to the car—reaching three times across the continent from New York to San Francisco. But the most significant thing in this connection is not the amount produced or consumed, but how it was used.

Ten years ago most material of this kind was used on row crops. Now more than 50 percent of it is used on grasses and legumes to improve grazing and soil conditions. We have actually begun to exchange fertilizers and minerals with the soil for grasses and legumes in a better agriculture.

As to farm equipment, our contribution has to do largely with its use. Forty years ago there were about 2,000 farm tractors in the United States. Thirty years ago the number had increased to about 200,000. In 1949, it exceeded 2½ million. In that same year there were 14,000 contractors in the nine Southeastern States using improved types of farm equipment to assist soil conservation districts in getting conservation measures applied to the land. Ninety-five percent of this type of work that was "hired" done was done by farmer-contractors. The replacement value of this equipment alone was $220,000,000.

But some will ask, "What is the value of all this? What is it worth to have an abundance of planting seed and fertilizers and farm equipment?" The answer is: There is no value in these things without soil and soil fertility. These do not constitute the big advances.

One thing to which we point with pride is the scientific use and treatment of the land. That's where Soil Conservation Service employees have made their big contribution, that is, in determining the capability of various lands and building a soil conservation program on them, not only with available materials and labor, but also to suit the land conditions. More than 300,000 farmers in these nine Southeastern States have seized the opportunity to use these principles in advancing the agriculture of this region.

Answers do not always come easy, but we work hard to get them. Take one example—Delta land in Mississippi looks flat, and apparently there should be no serious erosion problem. However, C. G. Nichols of Greenwood and the Soil Conservation Service technician assisting him knew that there was not only an erosion problem but also a problem of drainage. They tried a few things that seemed promising. They were seeking answers that were not in the book. They now refer to the answers they found as a system of row arrangement. It is really more than that. It clearly delineates areas of land for definite uses. It makes rows longer, fields larger, holds water, and prevents erosion of slight slopes while taking excess water off flat, wet land.

I am sure that there will not be in our time a 100 percent soil and water conservation program allied to the farm lands of our country. But we know that there are certain phases of this program, mainly land capability and use, that should be completed within a period of a very few years. This information is needed not only as a basis for all agricultural programs, but also as a guide in industrial development.

We want to finish that job. We also know that in the matter of applying needed soil conservation measures to the farm lands of this country a large part of that job should be completed within a period of 20 years. It costs a lot less to do it now than it will cost a few years later, and then we avoid the risk involved in putting it off.

# BUTTONCLOVER, ANOTHER OF THE GREAT NEW PLANTS

By BARRINGTON KING

FARMERS in the northeastern and northwestern Alabama soil conservation districts are pushing another new plant in the long list of those that are helping to revolutionize Southern agriculture.

Buttonclover (*Medicago orbicularis*) has made such phenomenal progress as a reseeding winter legume on cropland in the vicinity of Huntsville for the past few years, that the Alabama Buttonclover Growers Association celebrated with a buttonclover festival in April. After seeing a lush growth of the new plant on tours of several farms during the day, visitors from several surrounding States heard its virtues extolled at a dinner in Huntsville that night.

One reason farmers in the Huntsville area like buttonclover is that it lies close to the ground and provides good protection against erosion before the stand gets crowded and starts its upward growth. In fact, visitors were told during tours of the Forrest Bell and J. M. Hereford farms that it covers the ground with such a dense mat that "a snake will crawl on top instead of under it." Another advantage is that "it will wait for you to harvest seed."

One of the problems in machine harvesting of buttonclover has been the difficulty of getting the seed of the recumbent, mature plants off the ground with a combine. Development of a pickup reel, which was on display where the tours converged for refreshments during the afternoon, has eliminated this difficulty, it is said. Some of the growers reported harvesting seed as late as the Fourth of July and reported that about 97 percent of the seed are hard after going through a combine.

The high percentage of hard seed produced by buttonclover makes it possible to get a volunteer

NOTE.—The author is chief, regional division of information, Soil Conservation Service, Spartanburg, S. C.

**Beef cattle grazing first-year buttonclover on farm of A. D. Sample, supervisor of Northwest Alabama Soil Conservation District.**

**Visitors from several surrounding States attended the Buttonclover Festival in the Northeast Alabama Soil Conservation District last spring.**

crop for 3 to 5 years from one seed crop left on the land. This makes it especially valuable in crop rotations. Its value as a winter grazing crop was observed in several fields which had provided grazing from October to April for one cow to the acre. The farmers said they would still get a seed crop from the same land.

Gen. Edwin Jones, president of the Alabama Buttonclover Growers Association, who presided at a dinner, told how buttonclover got its start in the Huntsville area as a result of a visit to Tennessee by two local Soil Conservation Service workers who were impressed by possibilities of the plant. He said the two men wouldn't let up until they got farmers in the Northeast Alabama Soil Conservation District to try it.

"We think it's the best cover crop for row-crop land," General Jones said.

Dr. L. R. Neel, editor of *Farm & Ranch-Southern Agriculturist*, who did some of the early work with buttonclover as superintendent of the Middle Tennessee Experiment Station, emphasized the importance of cultivation to prepare a seedbed to enable buttonclover to reseed, and also stressed the plant's heavy lime requirements.

"A farmer can have 7 months' pasture from buttonclover and still get a seed crop," Dr. Neel said. "He can run buttonclover in rotation with corn 2 years out of 3. We know it has withstood a temperature of 17° below zero. One upland field has grown 8 years without any disease showing up. And we know that cattle, sheep, and hogs like it."

John Ewing, assistant director of the Tennessee experiment stations, reported that buttonclover is of European origin and was first found in this country in Wilson County, Tenn., following the visit of a circus to Lebanon. He said the crop requires soil of high fertility and needs inoculation. A special buttonclover culture is available commercially.

Ewing said buttonclover is one of the most palatable of winter crops and does not bloat cattle to the extent that some of the other clovers do. It requires cultivation for effective reseeding and is not suitable for permanent pasture. He said farmers can save up to 500 pounds of seed to the acre.

Several of the speakers pointed out that buttonclover is but one of many new soil-conserving, soil-building plants that, together, are working wonders in Southern agriculture. It was brought out that buttonclover is not adapted to conditions in all parts of the Southeast.

L. B. Scott, SCS regional nurseryman, said that another new plant, *Medicago obscura*, a close relative of buttonclover, had done well in the Service nursery at Brooksville, Fla., and might have possibilities in other areas. He discussed the seed-increase program of promising new plants in Service nurseries, including buttonclover, which has been in production at the Chapel Hill, N. C., nursery since 1937.

(Continued on page 279)

# COLORADO'S DYNAMIC BILL CASSELMAN

By NORRIS A. JACKSON

FOR a man who once was definitely opposed to farmer cooperatives, you'd think that Bill Casselman never would have allowed himself to be linked with a soil conservation district.

But the present ramrod of the Colorado Association of Soil Conservation Districts knew what he had been looking for when a group of farmers approached him 7 years ago with the idea of forming a soil conservation district for the Mosca and Hooper communities in south central Colorado.

To look at Bill, who registered as Loren B. Casselman at the University of Nebraska over a quarter of a century ago, he's another farmer. To hear him speak, to watch his expression and the way he operates, he's a high-powered conservation salesman.

Perhaps that's the reason the temporary State board of supervisors chose the mild-mannered but forceful farmer-dairyman from Mosca to represent the Mosca-Hooper district when the State association was formed. It's definitely why they elected him president in 1949 and again in 1950.

Bill's work with the district started early in 1943. The district was voted in May, a scant few weeks later.

Bill was elected secretary-treasurer, a position he still holds. In 1946, the supervisors hired him part time as secretary-manager to handle the district's financial interests. In March 1950 they decided he should receive pay for duties that absorbed his full time.

Directing activities of equipment valued at $35,000 is no small task. Under his supervision, seven men operate tractors, bulldozers, power shovels, draglines, scrapers, ditchers, and land planes for cooperators within a 192,960-acre area. Annual business exceeds $50,000.

There's also the matter of running the 80-acre district-owned farm, which was bought 2 years ago and reclaimed from brush land as an experimental farm for the southern end of the San Luis

Bill and registered Jersey bull calf "Selby."

NOTE.—The author is information and editorial specialist, Soil Conservation Service, Albuquerque, N. Mex.

Valley. A portion of the farm is assigned to 4–H clubbers for use in their projects. The farm is the first in Colorado to be district-owned and one of the few in the Nation.

As president of the State association, one of Casselman's pet accomplishments was the organization of the State into watershed districts. Built of local soil conservation districts, the watershed organizations act as clearing houses for the State group. They settle differences between districts before they reach the State body.

Each watershed district is ruled by a board of directors made up of two members of each local district within the watershed boundaries. There are seven such watersheds in the Mountain State, although only five are organized.

Farmer-cooperators in the State also approve his method of operating the State group: They commend him for letting them direct the local supervisors, who, in turn, kick the pants of the watershed directors, and so on up the ladder. The situation is a marked contrast, and in direct reverse, to some State organizations.

His family is one that eats, sleeps, and drinks soil conservation. When the Mosca-Hopper district was formed, the supervisors hired Bernice, Bill's wife, to keep books. Her system supplied the pattern for the State bookkeeping method.

Mrs. Casselman travels constantly with her husband and takes an active part in meetings. She was the first person upon whom Bill called for assistance when he was elected president of the State association last year.

Then there are his daughters: Mrs. G. B. (Patty) Ryan, who talked good farming before and after she graduated from high school; and Carol, who took her sister's place as salesman to the students. Coming up are granddaughters Bonnie, 5; Cathryn, 3; and Jacque, 1.

Casselman's home district nestles in the San Luis Valley between the Sangre de Cristo Mountains and the Continental Divide. When he came to the valley and his father's 160-acre farm shortly after World War I, the principal crop was alfalfa. Now orchards and cannery crops dot the landscapes and share prominence with feed production. New irrigation methods are a main interest.

During the last three decades, farm people of the area have seen Bill serve most of the time on the local school board, and recently they saw him act as one of three judges in a State-wide soil conservation contest sponsored by the *Denver Post* and radio station KLZ of Denver. He is also a member of the board of directors of the Rio Grande watershed district.

Bill has a zest for conservation and a love for the soil—a sound formula for a top man in a top industry. He doesn't hold a university degree, but when a new farm problem arises in the State, the first thought is to "ask Bill."

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## BUTTONCLOVER

(Continued from page 277)

L. L. Self, district extension agent, pointed out that no one crop will solve all the cover and grazing needs. "It's fine to study all possibilities," he said. "We should know the crop before we say to a farmer, 'This is the plant for you.' "

Recalling that during the morning tour the group had seen 750 acres of Kentucky 31 fescue on the G. W. Jones & Sons farm, operated by General Jones and his brother, Carl, the speaker said, "Many years ago we had several failures with fescue and decided it was not suitable as a major crop. Today we'll agree with you that it is."

W. G. Simpson, assistant State conservationist of the Soil Conservation Service, referring to the tours that preceded the dinner, said:

"This has been one of the most heartening days I've had in 25 years of professional agricultural experience. I can remember when it was a long jump between green fields in Alabama at this time of the year. Today it is hardly possible to get out of sight of a green field in this State."

J. C. Lowry, extension agronomist, pursued the same thought. "This is a part of a new day developing in Alabama and the Southeast," he said. "We've worried too long about our problems without realizing our advantages. But a spirit of optimism has developed, a kind of alertness.

"It's going to take a lot of seed to do the job. I can remember, about the time of the depression, when there wasn't a single seed processing plant in Alabama. At the beginning of this year there were 72. There has never been anything in the history of the State like the green cover crops we have today."

# VO-AG BOYS GET DOWN-TO-EARTH TRAINING

**Arriving at teacher's farm, the boys grab standard equipment from SCS truck and prepare for work. Technician Roy E. Ballard is at left; vo-ag instructor Champion Coles at center.**

By ROY E. BALLARD

THE Salem (N. J.) High School, cooperating with the South Jersey Soil Conservation District and Soil Conservation Service technicians, is demonstrating how vo-ag conservation farming projects can help to establish good land-use practices on district cooperators' farms, and at the same time build a younger generation of conservation farmers for the future.

A group of 75 boys, nearly all from farm families, is taking the training under the direction of their supervisor, Champion Coles, who operates the farm where the class work is done, and the SCS conservationist who heads the Salem County work unit. The boys are in classes with as many as 30 members. When they go to the fields, at least two or three times a month, to lay out strip cropping, they usually work in groups of three. The units increase when they do other work, such as drainage.

Classroom studies, preliminary to field activity, include the presentation and discussion of general soil information with its local applications, and a demonstration of equipment used in laying out conservation practices for establishment on the land. Through the actual handling of such instruments as a simple hand level, and the use of blackboard sketches, the methods used in laying out contoured strip cropping, drainage, diversions, watercourses, and farm ponds are taught. Pertinent terms are carefully defined so that there will be a common language for work in the field.

The first field activity is at Coles' farm. One boy takes the hand level, another a stake and hammer, and the third carries extra laths. As they move over the fields they exchange duties so as to spread the experience.

In due course, class members are put through a test to determine their accuracy. Two teams of three each are started at separate reference points on opposite sides of a 30-acre field that is to be laid out for strips. Unknown to all the boys is the fact that the reference points are located on the identical contour. If they do the job correctly, the two groups will meet head-on in the center of the field. Should they not meet there, they are sent back to the starting points and are made to repeat the process until they do meet at a common point. Discussion of problems, methods, and results follows.

NOTE.—The author is work unit leader, Soil Conservation Service, Salem, N. J.

As soon as the boys have become sufficiently adept, they are transferred to a district cooperator's farm where a real strip-cropping system is to be installed. Today, perhaps, they are to work at the Joseph DeMaris farm in Alloway Township, with their instructors and DeMaris checking every step.

When all strip boundaries have been located to the satisfaction of instructors and cooperator, DeMaris brings his tractor and plow into the field and, with the boys as observers, plows in the contour lines, his start in application of the practice. The boys collect the laths they used to mark the lines and prepare to move to another project.

The reaction of the boys to this type of project has encouraged Herbert K. England, superintendent of schools; Thomas J. Griffiths, his assistant; and Miss Marie L. Oehrle, high-school principal, to authorize expansion of training in soil and water conservation and good land use. Every vo-ag boy will have training and experience with all of the correct farm practices in the area.

The instructors observe that the boys' interest in their conservation studies is having an immediate effect on operations at some of their parents' farms. This leads to the belief that many of the boys will be full-fledged conservation farmers when they begin to operate on their own or take over their parents' farms. And among those who may not become full-time farmers there are some, the instructors say, who already have indicated that they want to become technicians with SCS or some other agency that works with the soil conservation districts.

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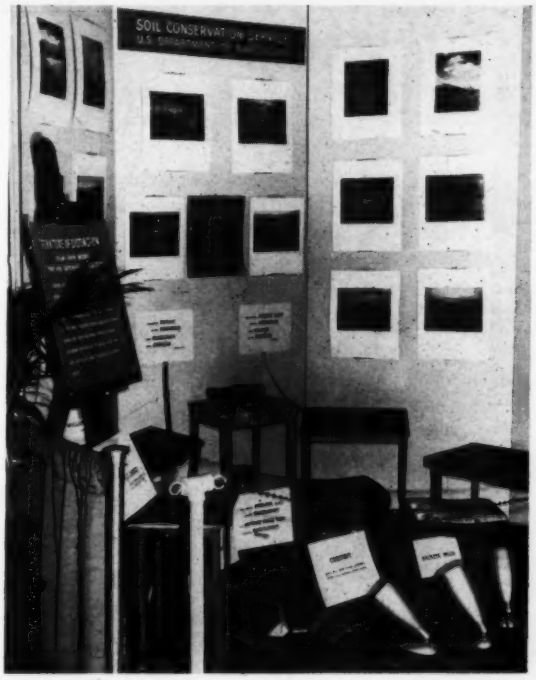
# FINE FURNITURE FROM WASTEWOOD

By GLENN K. RULE

MANY people pass by, throw away, or burn various wood materials that have unique possibilities when skillfully fashioned into articles of household utility. Many trees are cut down and burned because they don't classify as commercial. These come from ornamental and fruit-bearing plants, from small-stemmed species that are strangers to sawmills, and from soft woods not commonly used. The latter are customarily burned on the spot or are piled to rot in farm-




land clearings, without being considered as even worth hauling for fuel.

Hugh Bennett, America's top soil conservationist, is, however, constitutionally opposed to waste of any sort. He dislikes the misuse of fire and ax and saw, believes in as close an approach as possible to total conservation not only of the land but of the products of the land—and minerals and metals, as well. In his rural home near Falls Church, Va.—and in his Washington office—the Chief has a rare collection of stools and tables, patterned from a wide variety of woods of the odd-lot category. They are exquisite and varied in grain, coloring, and detail of finish. In them are achieved novel and beautiful effects usually beyond the range of ordinary commercial pieces. They are mostly small pieces prized by the Chief primarily because they show what can be done with woods that customarily are rejected and destroyed.

Lilac, for example, yields a beautifully colored, velvety border for small tables. Dogwood keeps it company. Even pawpaw and sassafras get their innings; in the hands of a skilled cabinet maker. And possumhaw, artfully worked into a table top, achieves an effect worthy of its intriguing name.

At the great flower show recently held in Washington's armory, booth 14 was one of the major attractions. It was labeled "Furniture of Distinction," and it featured pieces from the Bennett collection—handsome pieces made up of such woods as chokecherry, lilac, willow, sumac, dogwood, sassafras, ginkgo, boxelder, honey locust, Kentucky coffeetree, pawpaw, buckeye, chestnut, mesquite, and river birch. These normally spurned woods came from many States: the buckeye from Ohio, the lilac from New York, the willow from South Carolina, chestnut from Virginia, boxelder and possumhaw from Indiana, Kentucky coffeetree from Kentucky, sassafras from North Carolina, ginkgo from Washington, D. C., mesquite from Texas, and sumac and chokecherry from the Chief's place in Fairfax County, Va.

Some of the articles in the exhibit are of historical interest. The chestnut milk-stool came from an ancient fence rail which the Chief picked up on Peter Jefferson's place near Monticello. He doesn't claim that either Thomas Jefferson or his father split this particular rail, but he knows it was a very old rail, probably of the kind that was commonly used in the worm fences of early America. The ginkgo stool was fashioned from a tree which once stood on the site of the present Department of Agriculture.

The Chief still can scarcely realize that such a beautiful table could actually be made of willow, which farmers normally refuse to use even for firewood.

This exhibit of fine furniture which somehow horned-in on the Washington flower show proved, according to many visitors, just as popular as the exquisite displays of flowers of many varieties. The only thing that was more popular, according to an admission of the Chief, was the lunch counter. "Just goes to show," he said, "that food is the most popular thing on our whole list of possessions and productions. I can't see how anyone could possibly fail to value very highly the beautiful floral displays at the 1950 Washington flower show. Neither can I understand how anyone can fail to value very highly the productive land that gives us our food, our exquisite flowers, and even the woods of which we manufacture thousands of useful articles."

For further details see the Chief's article, "Wasteful Habits," published in SOIL CONSERVATION Magazine in August 1948.

# THE MYSTERY OF TRACE ELEMENTS

By JOHN R. HARNESS, JR.

MORE than 200 soil scientists and men and women of related interests gathered at Missouri University, Columbia, for a short course on "Trace Elements in Plant and Animal Life" early this year. This was the first such meeting to be held at the Missouri College of Agriculture and the attendance far exceeded the expectations of Dr. William A. Albrecht, head of the soils department, which sponsored the course. Among those attending were representatives of the fertilizer and farm-implement industries, Soil Conservation Service and college people, and a few farmers.

The trace elements are those which are in the soil in comparatively minute quantity. There are some 90 in all. Their importance undoubtedly is great but not well understood. As the major elements have been depleted, so, also, have the trace minerals. The lack of some of them may account for certain plant and animal diseases.

Some of the trace minerals known to be essential to plant growth are magnesium, manganese, boron, copper, zinc, and molybdenum. Cobalt has been found to be essential to man and animals but not to plants. It is only recently that cobalt has been classified as a part of that important new vitamin, B–12. Magnesium has been found to be a part of chlorophyl, the green coloring in plants, but it makes up only about 24 parts in 900 in the chlorophyl.

The soil, even in the virgin state, may not include all the elements. One soil may contain some minerals which are missing from another. Certain plants grow in such soils although they might do better if the trace elements were present.

Given a soil with proper trace elements, it seems likely that feeds such as corn could take up and store sufficient quantities of the elements to become a more complete feed. This might obviate the necessity for special feed supplements to furnish the needed elements and compounds in which corn is so deficient as to require supplementation.

NOTE.—The author is soil scientist, Soil Conservation Service, Bowling Green, Mo.

Information is meager. The discovery that some of the trace elements are essential was accidental and interesting. Boron, for instance, was found to be necessary for growing beans in water cultures. Beans would not grow until a little boron was added. And yet as late as 1905 boron was thought to be poisonous to plants. Today it is often added to soil to correct such conditions as yellowtop in alfalfa, stem crack in celery, and head discoloration in cauliflower. On the other hand, well water in parts of California carries too much boron. The problem there is to get rid of the boron or to grow crops that can tolerate large amounts. For example, sugar beets can stand much more boron than lemon trees.

In 1939 in water-culture experiments, molybdenum was discovered to be essential to plants. At first the discovery seemed of little significance. But today in a large area of Australia, as little as one-sixteenth to one-half ounce to the acre means the difference between worthless and good pasture land. Twenty-five cents worth of mineral adds as much as $35 per acre to the value of the pasture.

Lack of zinc causes "rosette" in peaches. This condition may be found even where zinc is plentiful in the soil but not in a form available to plants. The condition is corrected by spraying the trees with zinc sulphate rather than applying zinc compounds to the soil.

The trace elements can do good only where they are needed, and just because they are needed in one place does not mean they are needed in others. As an example, one-half part of boron to 3 million parts of soil is needed by some plants; three parts to 3 million is poisonous!

Numerous reports indicate that the trace-mineral level in the soil and forage grown upon it influences the health of animals. Cattle in Holland diagnosed as anemic were found to be eating hay low in copper. Cattle in Florida were suffering from a disease known as "salt lick." They were on a soil which had 0.036 percent iron and 3.85 parts per million of copper. Where soil contained 0.42 percent of iron and 8 parts per million of copper the cattle remained healthy.

In Missouri, a study is being made of the possibility that brucellosis in cattle herds is related to the lack of some trace elements in the soil and feed. At present the scientists pursuing this study admit they are like fishermen casting their nets into the sea. They are hoping to draw in new ideas and facts which can be put to use much as the information about boron was put to use.

Farmers can help greatly in adding to the available knowledge. Small-scale applications of minor elements in their own gardens or portions of their fields, and careful observations of the effect on livestock and crops, might well turn up some valuable clues. Trace or minor element deficiencies are usually spotty and the range is narrow between "too little and too much." For these reasons farmers should consult county agents, State agricultural experiment stations, and local Soil Conservation Service men for latest information before spending much money for "shotgun" mixtures.

## NOTES FROM THE DISTRICTS

**PROFITS FROM POOR LAND.**—Deep in South Carolina near Orangeburg is the 3,000-acre Millwood Farm of Edgar L., Jr., and Woodward D. Culler. The land has been in the family since about 1780, and the knowledge of the land has been handed down from father to son several times.

But one thing has Edgar Culler wondering: The white, deep sand that wasn't supposed to be worth farming made more money in 1949 than any other similar-size spot on the farm. The 39-acre field, planted in sericea lespedeza for several years in his program of soil conservation, made 600 bales of hay, supplied cattle with 1 month of grazing, and then yielded 10,100 pounds of clean, scarified seed. At 22 cents a pound, the seed brought a return of $2,222.

Sericea last year received 800 pounds of fertilizer to the acre. And while adverse weather and the boll weevil played havoc with the cotton that covered about 40 percent of the farm, the weather was just right for sericea. Of the 1,275 acres in cultivation, the Culler brothers now have more than 100 acres in sericea.

Another 50 acres will be planted next year. And that, along with 70 acres of kudzu, will just about wrap up the white sand on Millwood Farm.

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**YIELDS UP.**—Leonard Steenburg, Hartwick, N. Y., dairy farmer, observed the production John Kovac, his neighbor and chairman of the Otsego County Soil Conservation District, was getting from his contoured strips. So, when he bought a Cherry Valley farm, he called in the SCS technicians, had a complete conservation plan made, and started establishment. Although last summer's long drought cut production on his neighbors' farms, Leonard got an average oats yield of 48 bushels per acre, well above the average for grain raised in the neighborhood. His corn yields are up, too. His success is mainly due to contoured strip cropping, he says.

**GRASS MUST BE NOURISHED.**—Dr. W. F. Bushnell and Grover Fountaine, the owner and the operator of a 280-acre farm near Elk Point, S. Dak., do not agree with the adage "If the land won't grow anything else, seed it to grass." The bromegrass in their pasture neither gave the land much protection nor produced well until they treated it as a crop and fertilized it properly. Now, however, it gives the land excellent cover and yields abundantly.

Bromegrass was seeded on land not suited for cultivation, as provided in the farm's conservation plan—a plan developed in 1942 in cooperation with SCS technicians and the Sioux-Burle Soil Conservation District.

"Fertility was low and it has taken some time to get the grass going as it should," Fountaine explains. "We tried disking it, seeding sweetclover, and spreading barnyard manure, but without much result. Then we applied 35-percent nitrate fertilizer at the rate of 200 pounds per acre and got results. Before this was applied a dozen calves would keep the grass down. Afterwards, I pastured my whole herd of 30 head in that field.

"I suppose that the fertility of the land will be brought back in time to a high level because of the grass and the spreading of manure. But since grass uses a lot of nitrogen, it's my hunch that it'll continue to pay to use nitrogen fertilizer for a long time."

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**PROTECTING BEAUTY SPOT.**—The Watkins Glen, N. Y., Chamber of Commerce is supporting the Schulyer County Soil Conservation District in a program to protect the "Glen," New York State's famous beauty spot along Seneca Lake. With the assistance of other local, State, and Federal agencies they propose to establish all the conservation practices required to protect 20,000 acres in the Glen's watershed. Two hundred farmers are cooperating. The immediate aim is to control the flow of water through the Glen and stop the dumping of topsoil, rock, and gravel into the lake and its tributaries.

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**FOUR FARMS MOVE FORWARD.**—Wayne D. Cook, Dillsburg, Pa., now has a conservation quartet—four farms, 470 acres, all under complete conservation farm plans. His fourth farm, just leased, received the 1,100th complete farm plan made in the York County Soil Conservation District.

Altogether, Cook has 160 acres cropland, 225 acres pasture, 31 acres long-term hay, and 24 acres woodland. The balance is in roads and homestead.

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**FARM SAFETY WEEK.**—Just ahead is the busy harvest season when farm accidents reach the highest point of the year. This is the time to be especially careful with machinery and tools. Thousands of farm workers will be seriously injured or killed because of not following simple precautions in handling tractors and other machinery. Thousands more will be injured. Many districts plan to observe Farm Safety Week, July 23–29.

**TO SEE IS TO KNOW.**—To the Belleair elementary school in the Pinellas (Fla.) Soil Conservation District the study of soil and water conservation is not new. They've been at it for quite a while now. Recently they had a full-day exhibition to demonstrate the results of their study during the past year.

The Clearwater Kiwanis Club spent about $500 in transporting children on field trips where they could see both the need for and the results of soil and water conservation.

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**COOPERATION.**—Commissioners of the Yazoo County (Miss.) Soil Conservation District can rightfully boast of the help they received from various local groups. Take for example the 10-acre winter-grazing demonstration which the Agricultural Workers' Council is conducting. The Farm Bureau, Yazoo County Chamber of Commerce, and the Rotary Club jointly underwrote $1,500 of the loan needed to establish and stock the project which is carried on for the benefit of local farmers.

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**DROWNING ACRES RESCUED.**—Alex Hastillo, in the Tolland County (Conn.) Soil Conservation District, had 4 acres of wet land in the middle of an otherwise good field, which would not produce a crop even in the driest year. Jim Patric, SCS technician, worked out a plan to improve the situation. Hastillo laid one-quarter mile of perforated tile at a grade of 2⅜ inches per 100 feet. The job was difficult because of the extreme care required in placing the stakes so that they would correctly guide the workmen in laying the tile at just the right grade.

The total cost was 38 cents per foot—only $501.60—to remove water that would have filled a hollow 200 feet square and 4 feet deep. The ditch was dug with a back hoe. Four inches of gravel was placed in the bottom before the tile was laid. Then the ditch was refilled with more gravel.

The surplus water is carried to a farm pond, from which Hastillo draws irrigation water for other land. The system will serve for many years with little or no maintenance cost. With four more acres now in production, Hastillo calls his investment "dirt cheap."

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**BARGAIN DAYS.**—To encourage farmers to make a special effort with bulldozers between June 15 and July 15, when they ordinarily are up to their necks in haying, supervisors in the Essex County (Vt.) Soil Conservation District have reduced the cash price for district bulldozer work from $5.40 to an even $5 per hour.

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**TILE DRAINAGE ACHIEVEMENT.**—Another record: 22,000 feet of tile drainage have been installed in a 38-acre orchard on the E. E. Burns farm, Alton, N. Y. A combination of herringbone and random systems was used, outletting into an 8-inch main, 5 feet deep. Spacing varied from 25 to 100 feet, according to the drainage characteristics of the soil.

Technical assistance in survey, design, and installation was furnished by SCS technicians attached to the Wayne County Soil Conservation District.

**VALUE CONFIRMED.**—As a result of a questionnaire sent to readers of SOIL CONSERVATION Magazine in the Kingsbury County (S. Dak.) Soil Conservation District, "the supervisors of the district decided that it is a worth-while project to send out the subscriptions." They are, therefore, sending subscriptions to all new cooperators, to public libraries, high schools, banks, newspapers, implement dealers, and certain other individuals, in addition to 41 renewals—altogether 138 subscriptions.

The expense is being borne by the following firms: Citizens State Bank, Arlington; Community State Bank, Lake Preston; Farmers and Merchants State Bank, Iroquois; Oldham State Bank, Oldham; Peoples State Bank, De Smet; Kingsbury County Farmers Union Cooperative, Lake Preston; Frank Kneip, Arlington; O'Keefe Implement Store, De Smet; De Smet Motor Co., De Smet; Tommy Williamson Co., De Smet: Kruse Implement Co., De Smet.

**SUPERVISORS LOOKED AHEAD.**—Farsightedness by the supervisors of the Santa Fe (Fla.) Soil Conservation District is making it easier for farmers to grow the legumes and grasses they need to hold and improve their soil. In 1944 they bought a combine—the first in the county—to be used by cooperators for saving blue lupine seed. Then, in 1949, they bought and began operating a combination seed cleaner and seed dryer—another first for the county.

During the first season, 210,000 pounds of blue lupine seed were processed. Then around 30,000 pounds of Pensacola Bahiagrass, worth 75 cents to $1 a pound, were dried. A nominal charge for this service is paying for the equipment.

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**SEVENFOLD INCREASE POSSIBLE.**—South Jersey's pine barrens can be developed to produce seven times the amount of wood normally harvested, through such practices as prescribed burning, woodland thinning, and rotational harvest cutting. These practices, says Glenn Smith, SCS forester in South Jersey Soil Conservation District, will make it possible to cut the equivalent of 650,000 cords of pine annually, as contrasted to the 90,000 cords cut in 1946. The barrens are capable of growing 775,000 cords of pine in a year. The figures are based on studies made by the bureau of forest management, New Jersey State Department of Conservation and Economic Development.

**OFFERS TROPHY.**—Hugh D. Chamberlain, starting his ninth year as chairman of the Allegany County (N. Y.) Soil Conservation District, is offering a trophy to the farmer who makes the greatest contribution to soil and water conservation. It will remain in the possession of the winner for a year, or until a new winner is chosen. It becomes the permanent possession of a three-time winner. Requirements include establishment of a complete soil conservation plan on the farm. Participation in field days, conservation meetings, and demonstrations will help the farmer's score.

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**12-YEAR EPIC.**—Twelve years ago when the Soil Conservation Service assisted in the purchase of so-called submarginal land in the West Ottawa and Muskegon districts, in Michigan, there was considerable question as to what use would ever be made of the land and whether or not any immediate returns could be obtained. The land, purchased with LU funds for $27,660, was leased to the districts on a long-time basis for management purposes, with SCS assisting in development. The West Ottawa district, in which most of the land is located, has received an income of $13,214 to date or nearly 50 percent on the investment.

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**WOOD-LOT DEMONSTRATION.**—Joe Murphy of Leeds, a cooperator in the Androscoggin Valley (Maine) Soil Conservation District, feels that "assistance SCS has given to me in my wood lot is the best thing that has ever happened to me."

Fred Bell, Lewiston cooperator, who clear-cut part of his wood lot 6 years ago, says that if similar help had been available then "it would have saved me from ruining that part of my wood lot."

After a discussion in an area where there had been a release cutting of hardwoods in an excellent hemlock stand, and a discussion of methods used in thinning and pruning a young stand of pine, 14 farmers went to work in a demonstration on the farm of Jim and Ralph Blanchard. For 4 hours, in zero temperature, they used axes, saws, and pruning tools in marking, thinning, and pruning a ¼-acre tract of white pine, 6 to 8 inches in diameter. With a good, clear "before" and "after" picture and actual working knowledge of how to do the job, they were ready for work in their own wood lots.

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**SEED CLEANER HELPS RANGE.**—The New Helena (Nebr.) Soil Conservation District has cooperated with the Custer County noxious weed district in buying a portable seed cleaner and treater.

This equipment is now being moved from place to place as needed for the treatment of grass and legume seed and small grain. It is expected to stimulate grass seedings and bring about better land use and erosion control. It will also help to control noxious weeds by separating weed seeds from the others.

Previously, the only place in the county to get seed cleaned was at a seed house in Broken Bow where a small amount of custom work is done as a side line. Bringing the seed to Broken Bow means a long trip for many farmers and ranchers, so few use the facilities there.

**THREE YEARS.**—Three years ago, Walter B. Hutcheson, SCS technician, of the Orange Soil Conservation District, helped Gordon Eunice of Orlando, Fla., make a soil and water conservation plan for his dairy farm. Here's what has happened: The plan for the entire farm is completed. Capital investment has about doubled. Net farm income is more than 10 times the 1947 figure.

When Eunice launched his soil conservation plan with district help, his 25 acres of carpetgrass, supplemented by millet, oats, and rye caused feed bills to be high for his 200 dairy cattle, 120 of which were in lactation. Also, the Orlando dairyman found it necessary to buy all of his replacement animals from the north.

Of the 300 dairy cattle now kept, about 175 are being milked. Feed bill per cow is from 25 to 40 percent less than in 1947. More than that, Eunice now raises replacements for his herd.

Instead of the 25 acres of mediocre pasture, he has 200 acres of improved pasture. Here are some of the plants used singly and in combinations: Pangolagrass, Hubam clover, carpetgrass, white clover, common and Pensacola Bahiagrass, Dallisgrass, Kentucky 31 fescue, Coastal and "99" Bermuda-grass.

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**HISTORY HAS BEEN MADE.**—C. M. Felts, principal of King High School in Stokes County, N. C., thinks that soil conservation "is now a definite part of American history." Felts, who owns a farm in Forsythe County, has become so interested in conservation farming since he worked out a plan for his farm with the Tri-Creek Soil Conservation District that he decided to take students in American history on periodic trips to his farm so they can see the progress being made in soil and water conservation. "I intend to give them credit toward their American history course for the time spent on the farm," he said, "because I am convinced now that soil conservation farming is a definite part of American history."

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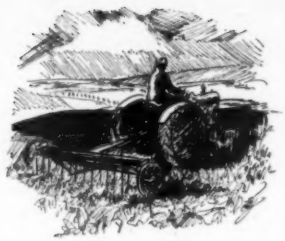
**CLEARING THE WAY.**—Austin S. Lamb, who farms at Ledyard, New London County, Conn., has just cleared 2 acres of "the stoniest land in Connecticut" at a cost of $133 per acre. When the field is harrowed, fertilized, and seeded, Lamb and his two sons expect to have pasture for more than two cows per acre compared with one cow for 4 acres previously pastured. They will irrigate with water from a nearby stream. SCS technicians working with the New London Soil Conservation District laid out the work as part of Lamb's complete farm plan.



**WISCONSIN PASTURE RESEARCH.**—Renovated pastures at the Upper Mississippi Valley Conservation Experiment Station have yielded three times as much dry forage as straight bluegrass pasture.

All fields were limed and well fertilized, but the average bluegrass yield was less than 1 ton to the acre. Land with alfalfa, medium red clover, and bromegrass gave nearly 3 tons to the acre.

Runoff and soil loss were less in pasture renovated with a field cultivator. Land with an 18 percent slope and plow-cultivated, lost over 5½ tons of topsoil to the acre. Land renovated with a field cultivator lost about 40 pounds to the acre. Broken sod left on the surface by the field cultivator protected the soil throughout the season and saved more soil than on pasture untouched in straight bluegrass.

Overgrazing will reduce yields whether pasture is renovated or not, say the La Crosse experimenters. They found that moderate grazing on renovated pasture increased yields about 20 percent over heavily grazed pasture.

Most of Wisconsin's permanent pastures are relatively unproductive, say the researches. But they will produce well with good treatment. Pasture deserves the same treatment as any other farm crop. In order to get the most out of any acre, it's best to fertilize the soil and put in productive seed mixtures. Well-managed pasture provides feed at lower cost than any cultivated crop, they say. This means more economically produced beef and mutton or cheaper milk in the pail.

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**PERSISTENCE WINS.**—When the Massachusetts State Legislature enacted legislation authorizing towns to establish regulations over the removal of topsoil, as a soil conservation measure, Joseph Brown, director in the Plymouth Soil Conservation District wrote all town selectmen and sent them a copy of the law to call their attention to this enactment. Then he wrote a similar letter to each of the town clerks. Next he wrote letters to all of the town directors of the Extension Service. He's getting results. Six towns already have established regulations and half of those that remain are scheduled to take early action.

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**PINES PAY.**—Ernie Boone, a Mississippi farmer getting SCS technical help through his soil conservation district, says, "I've cut over $300 worth of trees from a 3-acre patch of pines within the last 5 years. The first cut was for pulpwood, removing scrub and defective trees; then I cut poles and piling; and this time I'm getting posts and still leaving a good stand to grow."

**NEBRASKA TROPHY TO FOX.**—Devotion to conservation beyond the requirements of his job has brought a coveted award to an SCS employee: Adrian C. Fox of Lincoln, Nebr., head of the regional education relations section. The award is the Dr. Herbert Kennedy Nebraska Conservation Trophy.

Fox won because of his development of pupil and teacher guidance material dealing with soil, water, and wildlife conservation, and other activities in conservation. He was sponsored for the award by the Lincoln chapter of the Izaak Walton League of America, an organization in which he has been active. He is a member of the board of directors and serves as chairman of the committees on conservation education and publications-publicity-public relations. He is in his third year as editor of the chapter's monthly publication.

Fox is also executive secretary of the conservation education committee of the Nebraska division of the Izaak Walton League of America and a member of the league's national committee on policies in conservation education.

In addition, he is president of the State's oldest conservation organization, the Nebraska Ornithologists Union, and of the Lincoln chapter of the Soil Conservation Society of America. He is also a member of the conservation committee of the American Nature Study Society.

First winner of the trophy was William C. Bloom of Lexington, Nebr., Dawson County superintendent of schools, with whom Fox had worked closely in introducing conservation education in the rural schools of his county.

By virtue of the award, Fox gains possession for a year of a silver loving cup that is nearly 3 feet tall, and permanent possession of a smaller trophy.

A trained biologist, Fox has been head of the regional education relations section since his return from the Navy in November 1945.

He entered the Soil Conservation Service in 1935 as biologist and forester at the Wolsey-Shue Creek demonstration project at Huron, S. Dak., one of the first to be established in the northern Great Plains.

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**KIWANIANS MOVE IN.**—The Woodstown (N. J.) Kiwanis Club has presented to the supervisors of the South Jersey Soil Conservation District a request for assistance signed by 51 farmers in the Woodstown watershed. They want to control erosion and make better use of their land. The club is especially interested in preventing siltation and preserving the natural beauties of the lake at Woodstown. The supervisors are putting the project under way, reports Frank Cortelyou, SCS conservationist.

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**ONEIDA HITS 1,000.**—Oneida Soil Conservation District has the honor of being the first New York district to sign its 1,000th cooperator. Walter VonMatt is applying this 1,000th plan at his 178-acre Lee Center farm near Rome where he has been operating for a year. Oneida, the third oldest operating district in New York, started business December 6, 1940, 2 days after its next-door neighbor, Madison district. Madison has nearly 900 cooperators. Allegany, third in line, has 852; Cattaraugus reports 817; and Wyoming, the oldest operating district in the State, is fifth with 767 cooperators.

U. S. GOVERNMENT PRINTING OFFICE: 1950

**CRIMSON RIBBON.**—A 20-mile strip of crimson clover on the main highway from Eatonton to Madison, Ga., is one of the achievements of the Piedmont Soil Conservation District. This reseeding clover was sown last year on highway shoulders with seed donated by farmers of Morgan and Putnam Counties.

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**ASSOCIATION JOINS TEAM.**—As the second objective in a three-point program, the Connecticut Forest and Park Association at New Haven is undertaking promotion of conservation education in schools and workshops.

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**A LA THRASHER.**—Inspiration stemming from what he observed at the Thrasher farm face lifting near Frederick, Md., in 1948, has led Henry B. Watson, a newcomer in Carroll County, Md., to do a similar job on his 154-acre farm, Meadow Lands, near New Windsor.

Just a year ago, his son Brock Watson, now an Air Force cadet, plowed the first contoured furrow across the slope. Now the change in the style of operations has virtually been completed. Watson's accomplishments include 53 acres of contoured strip cropping, with sod waterways in all field depressions; 18 acres of perennial hay seeded to an alfalfa-orchardgrass mixture; ditches blasted in lowlands to drain wet areas; 15 acres of permanent pasture seeded to orchardgrass-Ladino clover mixtures; old roads and gullies closed; hedges removed to facilitate strip cropping; fences built on contour; and lime and fertilizer applied to all land on the basis of needs revealed by soil testing.

Additionally, he has built 1,600 feet of hard-surfaced road, remodeled his dairy barn to meet sanitary requirements, and started a herd with 27 head of Ayrshires. He is planning to add a dozen more cows as feed and pasture become available. His heaviest expenses were in barn and road work but, he says, the total cost is not prohibitive. Increased production per acre and lowered operating costs, he says, will soon pay for his conservation practices.

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**DAFFODILS ON THE CONTOUR!**—Our unusual back cover, from a photograph by Dale Swartz, shows part of a field of 30 acres of daffodils in the N. Van Hevelingen Nursery, Oregon. The mountain peak in the background, center, is Mount Hood.

This nursery produces daffodil and other bulbs, roses, and similar nursery stock in large quantities and ships throughout the world. It is the first large nursery in its part of Oregon to adopt a complete soil and water conservation program. That part of the story is important for the reason that the nursery was contoured, terraced, and otherwise treated as a demonstration designed to interest nurserymen and farmers in doing likewise. It attracted wide interest. On March 1 farmers overwhelmingly voted in the East Multnomah Soil Conservation District, a district which, incidentally, includes the regional office of the Soil Conservation Service at Portland.

The daffodils in the picture are the large "King Alfred." Total area of the nursery is 180 acres.

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SOIL CONSERVATION SERVICE

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